ENGINE CONTROL METHOD AND APPARATUS USING ION SENSE COMBUSTION MONITORING

ABSTRACT

A method and control system that directly determines combustion quality by measuring an ionization signal of each combustion event during initial engine operation is shown. The determined combustion quality is used to optimize engine performance for emissions and driveability by compensating various engine control parameters during initial engine operation, including starting. Compensation of engine control parameters may include changes to fuel delivery, spark ignition timing, and engine load. Any compensation of the engine control acts to ensure that a sufficient quantity of vaporized fuel is delivered to the engine to effectively start and operate the engine at the load level demanded by the engine, engine loads, and the operator.